

BEAMS DIVISION DEPARTMENTAL PROCEDURE

BD / MECHANICAL SUPPORT DEPARTMENT

Specification # 1305-ES-296343

Pelletron Open / Close Procedure

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This procedure explains the steps necessary to prepare the Pelletron for opening and closing of the vessel. **Note:** This procedure requires two people.

Pelletron Tank Opening Procedure

1. ***Contact Beams Division ES&H.*** Before opening the Pelletron tank after removing SF₆, call the BD-ES&H department. Ask them to be prepared to come out with the air sampling device and “Confined Space” form.
2. ***Determine Tank Status.*** Read gauge PI-1, located at the North base of the Pelletron tank next to valve V-21. The gauge should read 0 psig.
3. ***Verify.*** Check to make sure the gas transfer LOTO was performed by referring to the procedure; “SF₆ Gas Transfer Procedure”.
4. ***Remove the Access Flange.*** (Operator #1) Remove the 10” flange located on the tank dome. Secure it immediately, to prevent it from falling.
5. ***Install the Ventilation Fan.*** (Operator #2) Remove the flange marked “FAN” located on the lower catwalk. Install the filter media and the fan with the flow directed into the tank.
6. ***Contact Beams ES&H.*** After one hour of purging with the fan, call BD-ES&H to check O₂ levels from the access flange on the tank dome. Fill out required confined space entry permit.
7. ***Open Man-way.*** Open the man-way door. BEFORE entry, check the atmosphere inside the tank for safe O₂ level. Visually inspect the inside of the tank for obvious hazards. After determining that it is safe to enter the tank, cancel the confined space entry permit. Remove the “Confined Space” sign and post the vessel as “Non-Permit Confined Space”.

8. **Call FNAL Fire Department.** Inform them that the Pelletron tank is no longer a “Permit Required Confined Space”, it is re-classified as a “Non-permit Confined Space”.
9. **Service Platform.** Connect 3 electrical cables to the platform power distribution box. (Operator #1) Remove the aluminum c-plates from the cable pendulums. (Operator #2) Lower the cables and connect them. (Operator #1) Remove safety nuts from counter-weight immobilizing rods; lower the hydraulic ram slowly to load the cables. Deactivate the counter-weight immobilization lever and replace the Plexiglas cover.

Pelletron Tank Closing Procedure

1. **Lower Terminal Shell.** Assuming that the terminal shell was raised during access, start by cleaning the exposed parts of the column; refer to the instructions in step 2. Lower the shell onto the base section using the winch. Secure all latches. Continue lowering the shell-lifting device until you’re able to lift it from the center terminal shell hole at a 45° angle. Inspect the o-ring on top of the device for cleanliness and verify that it is seated properly. Raise the device to the top of the dome. **WARNING: DO NOT** over load the winch, as there is no automatic stop on the winch. Operator #1 on the tank’s outside catwalk must secure the device/flange with the aluminum C-plate and nut. Remove the hoist control pendant from the tank.
2. **Clean Inside of Pelletron.** Use a tack rag or specially designed dusting cloth and the small ShopVac. Start cleaning the outside top of the Column first, work your way down to the first deck. Then enter the center of the column from under the first separator box. Be careful not to disturb the optical fibers. Climb all the way to the terminal level and start dusting each level. Wipe down both pellet chains with a clean dust rag and Alcohol. Vacuum out the bottom of the Pelletron tank; pay particular attention to the feed-thrus, as they tend to trap particulates. Vacuum the service platform. During this process, look for anything that may be loose or missing.

3. ***Disconnect the Service Platform.*** Operator #2 rides the service platform to the top of tank. Search for personnel while lowering the service platform all the way to the bottom. Search below the platform. From this point until the man-way door is closed Operator #2 guards the man-way. (Operator #1) Actuate the counter-weight isolation device by lowering the Plexiglas door and raising the lever to capture the weight stack. The hand-actuated lever is located on the counterweight tower accessible from the tank catwalk. Pump the hydraulic cylinder until the weight stack reaches the top of its travel. Install the safety nuts on each counter-weight immobilizing rod by hand. **Note:** The nuts should only be hand tight. After securing the safety nuts release the hydraulic pressure on the Enerpac® system. Operator #1 communicates to Operator #2 that the nuts are secure. Press the service platform down button to allow enough slack to remove 6 cables from the pendulums after removing the quick disconnect pins. Inspect the 2 o-rings on each pendulum for debris and verify that they are seated properly. (Operator #1) Inspect the service platform cables as the pendulums are being raised. **Note:** The pendulums have a tendency to start swinging back and forth as they are raised near the top. Raise the pendulums almost all the way to the top; allow them to stop swinging before seating them. Disconnect 3 cables from the platform power distribution box. Operator #1 located on the tank catwalk, can then secure the pendulums with the aluminum C-plates and nuts. **Note:** A special wrench is located on one of the cable towers closest to the counter-weight tower.
4. ***Close the Man Way Door.*** **WARNING:** Failure to perform this step correctly could result in personnel injury or death. (Operator # 2) Verify that the Pelletron tank is empty by entering the tank and searching the service platform, below the service platform and up the center of the column for personnel. Remove the o-ring from the door. Clean the sealing surfaces of the doorway. Clean and grease the o-ring and reinstall it into the door. Close the door. Tighten all door bolts evenly. Install “Entry by permit” confined space sign over doorway.
5. ***Remove the Ventilation Fan.*** (Operator #2) Remove the fan and filter located on the side of the tank near the Pelletron base. Clean

both flange sealing surfaces. Clean and grease the o-ring. Install the flange.

6. ***Install the Access Flange.*** (Operator #1) Reinstall the 10” flange located on the tank dome, by first cleaning the flange sealing surfaces. Clean and grease the o-ring, then install the flange.
Note: Use enough grease to hold the o-ring in the flange groove.
7. ***Final Inspection.*** Perform a final inspection of the Pelletron, checking that all flanges, doorway, shorting rod and ports are installed and secured. Call the FNAL Fire Department to let them know the tank is closed and is now a confined space.